

United States Department of Agriculture Forest Service

Aviation Safety Alert

No. 2005-02

August 4, 2005

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Subject: Turbine Engine Operation

Area of Concern: Aviation Operations

Distribution: Fire and Aviation Personnel, Contract Pilots

Findings from investigation teams indicate that some pilots are not adhering to standard procedures outlined in their aircraft Pilot Operating Handbook and are not complying with reporting policies of the FSH 5709. There have been several incidents in recent weeks including hot starts, fuel mismanagement and not following/using standard manufacturer's checklists.

The following are examples of two incidents that have been experienced this season:

A Bell 206 B III equipped with a Rolls Royce turbine engine was operating on a Forest Service contract when it experienced a hot start. The panel light illuminated in the cockpit indicating a temperature exceedence of over 1 second in duration. The pilot aborted the start-up and reported it to his company maintenance officer. The maintenance officer instructed the pilot on a procedure for extinguishing the light. This procedure is contrary to the procedure established by the manufacturer, which specifies an engine inspection prior to returning the aircraft to service after a high temperature (hot start) event.

During the start-up of an Aero Commander equipped with a Garret turbine engine the pilot experienced a temporary temperature spike. The pilot had attempted the start sequence without following the appropriate checklist and started the engine with propeller in the feather position. Observing that the turbine spin-up was slow and temperatures were rapidly rising, he attempted to abort the start sequence but failed to maintain turbine temperature within specified limits, thereby experiencing a "hot start". After correcting the prop position for start, the next attempt at starting the engine was successful and the pilot elected to fly the aircraft back to home base on its scheduled leg. Subsequent inspection revealed that the engine had been substantially damaged and required a hot section overhaul.

Forest Service Handbook 5709.16.11.29 states "All aircraft operations shall be within the manufacturer's allowable gross weights, performance criteria, and flight manual limitations". Pilots are reminded to review the pilot's operating handbook for procedures applicable to turbine engine start-up, and especially temperature limitations, and are advised to use appropriate checklists. In the event that a temperature spike appears to exceed the POH limitation, abort the mission and seek the advice of a Regional Aviation Maintenance Inspector immediately.

Note that FSH 5709.16.45.3 also requires a report of significant maintenance deficiencies or malfunctions with FAA form 8010-4 and a Forest Service SAFECOM. A hot start is a reportable event.

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